AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (Previously Presented) In a multi-hop network including a plurality of nodes that each maintains a table of network topology, a method for disseminating topology and link-state information over the multi-hop network, comprising:

maintaining a path tree for each source node in the network that can produce an update message, each path tree having that source node as a root node and further having a parent node and zero or more children nodes;

receiving update messages from the parent nodes in accordance with the path trees rooted at the respective source nodes that originated the received update messages, the update messages including information related to links in the network and being received on their respective path trees;

updating the table of network topology in response to the information in the update messages received via the path trees rooted at the source nodes; and

forwarding the update messages to children nodes, if any, in accordance with the path trees rooted at the source nodes that originated the update messages in response to the information in the received update messages, if it is determined that the update messages should be forwarded to the zero or more children nodes, such that topology information for the network is globally updated across the plurality of nodes.

2. (Previously Presented) The method of claim 1 wherein the information related to the links indicates whether the update messages are to be forwarded to other nodes.

3. (Original) The method of claim 1 wherein the path tree associated with each source node is a minimum-hop-path tree.

4. (Previously Presented) The method of claim 1 further comprising obtaining link-

state information from one or more nodes in the path tree rooted at a given source node for use in developing the path tree rooted at that source node.

5. (Previously Presented) The method of claim 1 wherein the links are wireless communication links.

6. (Previously Presented) The method of claim 1 further comprising sending a new parent message to a node selecting that node as a new parent node for the source node originating an update message.

7. (Original) The method of claim 6 further comprising receiving from the new parent node in response to the new parent message link-state information associated with the source node that originated the update message.

8. (Original) The method of claim 7 wherein the new parent message included a serial number and the link-state information received in response to the new parent message is associated with update messages having serial numbers that are greater than the serial number included in the new parent message.

9. (Previously Presented) The method of claim 1 further comprising:

determining that a path through a new parent node for a source node originating an update message has the same number of node hops as a path through a current parent node, and

maintaining the current parent node as the parent node for the given source node.

10. (Previously Presented) The method of claim 1 further comprising:

determining that a path to a source node originating an update message ceases to exist; and

maintaining the current parent node as the parent node for the source node.

11. (Previously Presented) The method of claim 1 further comprising broadcasting the update messages to the children nodes if the number of children nodes exceeds a predefined threshold when forwarding the update messages to children nodes.

12. (Previously Presented) The method of claim 1 further comprising transmitting the update messages to each child node using a unicast mode if the number of children nodes is less than a predefined threshold when forwarding the update messages to children nodes.

13. (Previously Presented) The method of claim 1 further comprising:
computing a parent node for each neighbor node and source node; and
determining which neighbor nodes are children nodes for a given source node.

14. (Previously Presented) A network, comprising:

a plurality of nodes in communication with each other over communication links, each node maintaining a table of network topology and a path tree for each source node in the network that can produce an update message, each path tree having that source node as a root node and further having a parent node and zero or more children nodes,

wherein one of the nodes (i) receives update messages from the parent nodes in accordance with the path trees rooted at the source nodes that originated the received update messages, the update messages including information related to links in the network and being received on their respective path trees, (ii) updates the table of network topology in response to the information in the update messages received via the path trees rooted at the source nodes, (iii) and forwards the update messages to children nodes, if any, in accordance with the path trees rooted at the source nodes that originated the update messages in response to the information in the received update messages, if it is determined that the update messages should be forwarded to the children nodes, such that topology information for the network is globally updated across the plurality of nodes.